COUNTERFACTUAL CONDITIONALS AND FOCUS

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This article deals with the semantics of so-called mismatched two-past counterfactual conditionals exemplified by "If his son had been born TOMOR-ROW_F (instead of yesterday), John would have been ecstatic." The antecedent of this conditional is a past perfect, but posits a fictitious situation in the future of the utterance time. I argue that a focused future temporal adverbial (e.g. *tomorrow*) in the antecedent is associated with covert *instead* and that this yields the desired interpretation. The future adverbial is contrasted with a covert past adverbial (e.g. *yesterday*), which justifies the use of the past perfect in the antecedent. A formal proposal presented here is based on Kratzer (1981) and Rooth (1985, 1996).*

1.   Introduction

This paper discusses counterfactual conditionals like (1a, b) in which the past perfect form (*have V-ed*) is used in the antecedent to posit a counterfactual future situation and the *would have V-ed* form is used in the consequent to describe what results from this supposition at the same future time. Ippolito (2006) refers to this type of counterfactual conditional as a **mismatched two-past counterfactual** because of the mismatch between

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the tense form and its meaning and the fact that the antecedent has two morphemes that are past time oriented: the past tense morpheme and the perfect. In (1a), the adverbial *tomorrow* is focused and shows that the speaker posits a future counterfactual situation (i.e. John's son's being born tomorrow), and concludes on the basis of this supposition that John is ecstatic at that future time (i.e. tomorrow). (1b) has the same temporal properties. (1c), on the other hand, is a more common example of a two-past counterfactual in that the counterfactual situation being posited belongs to the past of now. Correspondingly, the conclusion is about the same past time. This is what is generally expected. (1a, b) go against this expectation.

(1) a. If his son had been born TOMORROW$_F$, John would have been
            ecstatic.
      b. If we had gone out for a walk TOMORROW$_F$, we would have
            had a good time.
      c. If Mary had studied ENGLISH LITERATURE$_F$ in college, she
            would have been happy. (She actually studied computer science in college, and she was unhappy.)

The reader might wonder about whether conditionals like (1a, b) are ever used in natural situations. Here are some possible circumstances in which such conditionals could be used felicitously: suppose that John's son was actually born yesterday, which delighted John enormously. However, he had secretly hoped that his son would be born two days later (tomorrow), which happens to be his own birthday. In other words, John was hoping to share the same birthday with his son, but his wish did not come true. (1a) is used in this situation to indicate that if we assumed counterfactually that his son is born tomorrow, we could conclude that John is pleased even more.

It is important to see that the evaluation of this counterfactual conditional is based on the assumption that one and the same person can be born only once. Given this assumption it is easy to see that two times are competing, as it were, for the time of John's son's birth. In other words, the counterfactual situation in question is one in which John's son is born tomorrow, rather than yesterday. This example was chosen to highlight the characteristic of mismatched two-past counterfactuals, but I do not mean to suggest that a biologically unrepeatable event (like the birth of a child) is needed in a mismatched two-past counterfactual. For example, (1b) involves an event that can be repeated at least in principle but still receives a special interpretation thanks to the temporal adverbial *tomorrow*. The point here is that although it is pragmatically possible for us to go out for a walk tomorrow as

well as yesterday, this possibility is excluded when (1b) is evaluated. One must consider a counterfactual situation in which we go out tomorrow rather than yesterday. On this assumption, we conclude that we would have had a good time tomorrow. One possible scenario is this: due to scheduling constraints we had to choose between yesterday and tomorrow for going out for a walk. We decided to do so yesterday and got rained on. Now the weather forecast says that tomorrow is guaranteed to be nice and sunny. In this context, (1b) is felicitous.

In both (1a) and (1b), the temporal adverb *tomorrow* is said to be **focused** in that it has intonational prominence. This is indicated by a subscripted F in (1). This type of example is not discussed explicitly in previous proposals such as Stalnaker (1968), Lewis (1973) and Kratzer (1981, 1989). Rooth (1985) discusses some examples of counterfactuals with a focused constituent in the antecedent and proposes an account based on Kratzer's (1981) analysis of counterfactuals, but his examples do not involve focused temporal adverbs. This paper presents a proposal that extends and modifies the Kratzer-Rooth account to accommodate data such as (1a, b).

Kratzer (1981) expresses her intuitions about counterfactual conditionals as in (2).

> (2)   The truth of counterfactuals depends on everything which is the case in the world under consideration: in assessing them, we have to consider all the possibilities of adding as many facts to the antecedent as consistency permits. If the consequent follows from every such possibility, then (and only then), the whole counterfactual is true.

English conditionals of the form (3a) normally introduce counterfactual situations located in the past as in (3b) and are referred to as **two-past counterfactuals** by Ippolito (2006).

> (3)   a.   If … had p.p. …, … would have p.p. …
>   (where p.p. indicates the past participial form of a verb)
>   b.   If John had been rich, he would have been happy.

English counterfactuals in which the antecedent contains a simple past tense form are called **one-past counterfactuals** by Ippolito (2006) and are schematized in (4a) and are exemplified by (4b).

> (4)   a.   If … V-ed. …, … would V. …
>   (where V-ed indicates the past tense form of a (stative) verb, and V indicates the infinitival form of a (stative) verb)
>   b.   If John were rich, he would be happy.

Iatridou (2000) claims that the past tense as used in (3b) and (4b) is "fake"

in that it does not convey the meaning of anteriority. Instead, it has the meaning of being evaluated at a world different from the actual one. This view is similar to what is commonly expressed in textbooks such as Palmer (1986, 2001). Assuming that past tense makes the same semantic contribution in (3a) and (4a), we can assume that the past is responsible for conveying a counterfactual (or modal) meaning. If we assume that the perfect is used in two-past counterfactuals to indicate anteriority, then the tense forms used in the two types of counterfactual conditionals are reasonable. However, this explanation does not apply to mismatched two-past counterfactuals like (1a, b).

Iatridou's account of tense morphemes in counterfactuals is consistent with what is implicitly assumed in the previous semantic proposals about them. For example, Lewis (1973) posits the counterfactual conditional connective $\square\!\!\rightarrow$, which produces formulas such as (5a). This translates the English counterfactual (5b) and reads informally as 'if it were the case that Otto behaves himself, then it would be the case that Otto is ignored.'

> (5) a. Otto behaves himself $\square\!\!\rightarrow$ Otto is ignored
>   b. If Otto behaved himself, he would be ignored.

This analysis implicitly assumes that the past tense in the antecedent and the auxiliary *would* in the consequent are used to indicate counterfactuality (a modal concept) and not anteriority (a temporal concept). The present tense in (5a) or its paraphrase given above indicates that the temporal location of whatever the antecedent describes is the utterance time. By extending this general idea, Lewis informally presents the case of two-past counterfactuals in the following way.

> (6) a. We were finished packing Monday night $\square\!\!\rightarrow$ we departed
>   Tuesday
>   b. If we had been finished packing Monday night, we would
>   have departed Tuesday morning.

Lewis's "official English reading" of (6a) is 'If it were the case that we were finished packing Monday night, it would be the case that we departed Tuesday morning.' Lewis assumes something analogous to Iatridou's proposal about the semantic contribution of English tense forms.

Let us tentatively propose the truth conditions for counterfactual conditionals as shown in (7) on the basis of Lewis' (1973) semantic proposal for counterfactuals combined with Iatridou's (2000) ideas about tense/aspect forms in counterfactuals. The assumption here is that the entire sentence denotes a function of type $\langle s, \langle i, t \rangle\rangle$ (where s indicates worlds, and i indicates time intervals) and it applies to the context time (usually the utterance

time) to yield a truth value. In (7) and the rest of this article, t_c and w_c are used to indicate the utterance time (the context time) and the actual world (the context world), respectively. The subscripted c is mnemonic for the utterance context.

(7) $[\![$If A past perfect$_3$ V^1, B past woll perfect V$^2]\!](w_c)(t_c)$ is defined only if $g_c(3) < t_c$, where g_c is an assignment function provided by the utterance context. If defined, $[\![$If A past perfect$_3$ V^1, B past woll perfect V$^2]\!](w_c)(t_c) = 1$ iff in every world w that is "closest" to the actual world w_c among those w_9 such that $[\![$A V^1(tenseless)$]\!]$ $(w_9)(g_c(3)) = 1$, it follows that $[\![$B V^2(tenseless)$]\!](w)(t) = 1$.

(7) accounts for (3b). That is, (3b) is true iff at the past time that is supplied by the context sensitive assignment, if we assume counterfactually that John was rich at that time, then we can conclude that he was happy at that time. However, (7) clearly has problems with (1a, b).

The crucial problem with (7) is its requirement that the counterfactual situation be located in the past. (1a, b) violate this requirement because the adverbial *tomorrow* clearly denotes a future time. In other words, in calculating the truth value of (1a), we would need to find worlds in which John's son is born at the contextually salient past time, and this time is part of tomorrow. This is contradictory and there are no such worlds. Intuitively, (1a, b) are analogous to other two-past counterfactuals such as (8), in which a name is focused, in that they make reference to some relevant past situations.

(8) If BILL$_F$ had gone for a walk (yesterday), he would have enjoyed himself.

A counterfactual such as (8) in which a non-temporal expression is focused leads us to believe that the perfect indicates that what the antecedent describes is located in the past. But given what we saw in mismatched two-past counterfactuals, we must arrive at a slightly different conclusion because it is not necessarily the case that the (possibly) hypothetical situation described by the antecedent is located in the past.[1]

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[1] An anonymous reviewer asks me to clarify what it means for "a hypothetical situation to be located in the past" by citing the example in (i). (i) is an interesting example in that the bold faced temporal indexicals receive a *de-dicto*-like interpretation (the day on which what actually happens today in the actual world would happen in the relevant possible worlds).

(i) If tomorrow were/had been **today**, then today would have been **yesterday**.

Although (i) is an interesting example, the expressions in question occur as predicate nominals, and it is an exceptional case. When temporal indexicals occur as adverbials,

We will entertain the hypothesis that there is an actual situation that is contrasted with the counterfactual situation described by the antecedent that is located in the past. That is, the perfect locates this presupposed event or state in the past. For example, in (1a) the time at which John's son was actually born is in the past, and in (8) the time at which someone other than Bill actually went out for a walk is in the past. In order to bring out the desired semantic effect, I will propose that the focused expression is semantically associated with a covert adverbial *instead*. This account is good for mismatched two-past counterfactuals like (1a, b) and also for a non-mismatched two-past counterfactual like (8), though there are non-mismatched two-past counterfactuals that do not involve covert *instead*. I argue that the "pastness" associated with (the antecedent of) mismatched two-past counterfactuals is the position of the contextually salient time. In other words, using a two-past counterfactual (at least the type that we discuss in this article) indicates that the current "reference time" (Reichenbach (1947)) or "topic time" (Klein (1994)) is located in the past. This point will be elaborated below.

Another possible problem with (7) is that it might not make the right predictions as to which worlds are closest to the actual one in terms of a relevant similarity hierarchy. For example, it is arguable that in (1b) the worlds in which we go out for a walk tomorrow as well as yesterday are more similar to the actual world than those in which we go out for a walk tomorrow but not yesterday. However, the empirical data tell us otherwise. Intuitively, what we need for (1b) is to imagine a world in which we go out for a walk tomorrow *instead* of yesterday. This needs to be explained. I shall eventually explain this in terms of what is taken for granted in the utterance context.

Another fact worth noting here is that the type of interpretation that (1a, b) receive is truly counterfactual in that (9a, b) would not be appropriate in the contexts in question.

   (9) a. If his son was/were born TOMORROW$_F$, John would be pleased.
        b. If we went out for a walk TOMORROW$_F$, we would have a
            good time.

they seem to be used as true indexicals. Thus, when temporal indexicals are used as adverbials in two-past counterfactuals, they do indicate temporal locations of hypothetical situations in relation to the "actual now" in the "actual world." I am not concerned about the complex correspondence relations about times among possible worlds suggested by examples like (i).

(9a, b) exemplify what Iatridou (2000) refers to as future less vivid conditionals, whose antecedents contain a simple past tense form but refer to future situations. They would be appropriate in circumstances where John's son's being born tomorrow (or our going out for a walk tomorrow) is unlikely but is not completely ruled out.[2] This type of supposition is very different from what is found in counterfactual conditionals. More importantly, the proposition described by the antecedent is not contrasted with any proposition that was true in the actual world. Thus, (9a, b) and (1a, b) cannot be used interchangeably. I think it is fair to say that Iatridou's hypothesis about "fake past tenses" does not predict the difference between true counterfactuals and future less vivids because they all seem to contain "fake past tense morphemes." In a non-trivial sense, examples like (1a, b) can be called true counterfactuals in that they describe hypothetical future situations that are already precluded at the utterance time, unlike future less vivids. In this article, I will explain the semantic properties of mismatched two-past counterfactuals from the viewpoint of association with focus inspired by the past research done by Rooth (1985) and Kratzer (1981).

2. An Improved Version of the Kratzer-Roth analysis of Mismatched Two-Past Counterfactuals

2.1. Kratzer (1981)

This section first discusses Kratzer's (1981) theory of counterfactuals. We will then see how Rooth (1985) combines his theory of focus with Kratzer's theory of counterfactuals to account for the semantic effects of focus in counterfactuals. I will propose an amendment to Rooth's proposal in order to provide an improved account of focus effects in counterfactual conditionals.

In formalizing her theory, Kratzer (1981) posits a partition function f that selects for any world w the set of all propositions that are "the case" in w. Kratzer's account goes as follows: $A_w(p)$ for any proposition p and

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[2] Ippolito (2006) discusses examples like (i) and suggests that it is truly counterfactual. However, as long as John is alive, he could change his mind and run the marathon next year. So I do not think it shows that it is a genuine counterfactual. I do not wish to settle this question for the purpose of this paper, however, because this issues is not essential to the point I make here.

   (i) If John ran the Boston marathon next spring—which he won't—he would finally win.

world w is defined as **the set of all consistent subsets of $f(w) \cup \{p\}$ which contain p.**[3]   We can then say that a counterfactual conditional of the form "**if it were the case that p, then it would be the case that q**" is true in w iff the truth of q follows from every maximal set (of propositions) in $A_w(p)$ (assuming that maximal sets of propositions exist in $A_w(p)$).

   Kratzer proposes the truth conditions for counterfactual conditionals as in (10a).[4]   This is restated formally as in (10b).   The clause "**P $\in$ A$_w$([[a]]) and there is no Q $\in$ A$_w$([[a]]) such that P $\subset$ Q**" says that P is a maximal set in A$_w$([[a]]).

   (10) a. A counterfactual conditional [[if a then b]] is true at w iff [[b]] follows from every maximal set in A$_w$([[a]]).
         b. A counterfactual conditional [[if a then b]] is true at w iff for each P: P $\in$ A$_w$([[a]]) and there is no Q $\in$ A$_w$([[a]]) such that P $\subset$ Q, $\cap$ P $\subseteq$ [[b]].

To account for our intuitions about counterfactual conditionals, it is important to distinguish between the facts that we need to "keep" for the purpose of evaluating the antecedent, and the facts that we need to "kick out."   For example, assume that Hans and Babette spent the evening together by going to a restaurant called "Dutchman's Delight."   Given this fact, let us suppose counterfactually that Babette had gone to a bistro called "Frenchman's Horror" instead.   In this case, we seem to be justified in concluding that Hans would have gone there, too.   This follows from Kratzer's proposal if we assume that $f(w_c)$ (where w_c indicates the actual world) includes the proposition "Babette and Hans spent the evening together" and that this proposition is included in every maximal set in A_{w_c}([[Babette went to Dutchman's Delight]]).[5]   This enables us to claim that every maximal set (of propositions) in A_{w_c}([[Babette went to Dutchman's Delight]]) must entail [[Hans went to Dutchman's Delight]] because the former also includes the proposition "Babette and Hans spent the evening together."   Moreover, the proposition [[Hans went to Dutchman's Delight]] must be excluded from each maximal set of propositions in A_w([[Babette went to Frenchman's Horror]]) because

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[3] Note that this is a set of sets of propositions, which equals a set of sets of sets of worlds given that a proposition is defined as a set of worlds.

[4] Kratzer (1981: 202) presents her analysis as follows (assuming that there are maximal sets of propositions in A$_w$(q)): The proposition r follows from every maximal set in $A_w(q)$.   (A set is maximal in B iff it has no proper superset in B.)

[5] Let me assume here that [[S]] indicates the proposition associated with any sentence S, rather than its truth value.

it is not consistent with the assumption that they spent the evening together. In other words, the counterfactual conditional in (11) is true.[6]

> (11)   If Babette had gone to FRENCHMAN'S HORROR$_F$, Hans would have gone there, too.

Note that (11) contains a focused constituent, namely *Frenchman's Horror*. The fact that this constituent is focused is clearly related to the fact that Frenchman's Horror is contrasted with Dutchman's Delight in the context in question. In general, when a counterfactual conditional contains a focused constituent in its antecedent, we can predict which proposition should be gotten rid of from each maximal set of consistent propositions by paying attention to the focus-related information available in the conditional.

The temporal examples in (1a, b) (repeated here as (12a, b)) have exactly the same characteristic as non-temporal examples except that the mutually exclusive nature of the two propositions in temporal examples is prima facie more surprising than in non-temporal ones.

> (12)   a.   If his son had been born TOMORROW$_F$, John would have been ecstatic.
>
>   b.   If we had gone out for a walk TOMORROW$_F$, we would have had a good time.

In Kratzer's proposal, we would need to posit a more general fact and let it be an element of $f(w_c)$. We should then include this proposition in each maximal set of consistent propositions including the antecedent. For instance, in (12a), it might be "Sharing the same birthday with his son makes him very happy." The focus information gives us another generalization: "there is exactly one time t among contextually salient alternatives such that John's son is born within t." Regarding (12b), we perhaps need to posit the following generalizations: "one can have a good day if they take a walk on a sunny day" and "there is exactly one time t among contextually salient alternatives such that we go out for a walk within t." Following this reasoning, Kratzer's account succeeds in accounting for why some propositions must be kicked out. However, assuming that we adopt Kratzer's proposal, we want to explain formally how focus facts are related to the selection of the function f since the examples discussed in the paper are all focus-

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[6] An anonymous reviewer correctly points out that "If Babette had gone to FRENCHMAN'S HORROR, Hans and Babette would not have spent the evening together." could be a true counterfactual conditional in the same context. I agree. However, the proposition "Hans and Bebette spent the night together" would not be included in $f(w_c)$ in this case. Thus, it is often very difficult to determine what general proposition is included in $f(w_c)$.

sensitive.[7] For the purpose of finding such an explanation, let us discuss
Rooth's (1985) attempt to integrate his account of association with focus
and Kratzer's theory of counterfactuals.

2.2. Rooth (1985, 1996)

Rooth (1985) provides an account of focus effects in counterfactual con-
ditionals on the basis of Kratzer's (1981) proposal. He examines Dretske's
(1972) examples in (13) and concludes that the p-set (i.e. the set of alterna-
tive propositions) is used in each case to produce an existentially quantified
proposition that is chosen by the partition function f for the actual world
w_c. Rooth's general proposal about focus effects is that a focused expres-
sion invokes a set of alternatives that consists of the entities that belong
to the same type as the ordinary denotation of the focused expression and
that this set is "manipulated" by another expression that occurs in the same
sentence such as *only* and *even*. The situation under discussion is one in
which Clyde marries Bertha because being married at the age of thirty is
the condition for being eligible for an inheritance. This condition should
be one of the generalizations that needs to be in $f(w_c)$.

> (13) a. If Clyde hadn't MARRIED$_F$ Bertha, he would not have been
>   eligible for the inheritance.
>   b. If Clyde hadn't married BERTHA$_F$, he would not have been
>   eligible for the inheritance.

For each example, we can obtain an existentially quantified proposition with
a variable in the position of the focused expression after removing negation:
(14a) for (13a), and (14b) for (13b).

> (14) a. There is a relation R such that <Clyde, Bertha> $\in R$, where
> R is one of the contextually salient relations. (**Getting
>   married** is one of them.)
>   b. There is an individual x such that Clyde married x, where
>   x is one of the contextually salient individuals. (**Bertha** is
>   one of them.)

Rooth contends that each proposition thus obtained is an element of $f(w_c)$
for each example. This assumption allows us to conclude that (13a) is
true because we can assume that every maximal set of propositions in

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[7] Kratzer's proposal (1981, 1989) has been criticized by Kanazawa, Kaufmann and
Peters (2005), and Kratzer (2005) responds to this criticism. I believe that our discus-
sion can proceed without touching upon this recent debate.

A_{w_c}([[Clyde didn't MARRY$_F$ Bertha]]) includes the proposition "Clyde was related to Bertha via at least one relation that is salient in the context." This should allow us to conclude that Clyde was related to Bertha via a non-matrimonial relation and, therefore, Clyde was not eligible for the inheritance. By contrast, (13b) is intuitively false and is verified by Rooth's account. Note that $f(w_c)$ is assumed to contain the proposition (14b), which leads us to conclude that each maximal set in A_{w_c}([[Clyde didn't marry BERTHA$_F$]]) includes the proposition "Clyde married someone different from Bertha" (among those that are salient). If so, Clyde would have been eligible for the inheritance. Therefore, (13b) is false. As mentioned above, the proposal is that **the existentially quantified proposition is derived by first removing negation and existentially quantify over a variable posited in the position of a focused phrase**. The fact that negation has to be removed before calculating the p-set is odd. Other than that, this proposal (with an appropriate restriction on the set of alternatives) provides the right truth conditions for counterfactual conditionals in question such as (14a, b).

2.3.   Some Issues with Rooth's Account

It turns out that Rooth's proposal encounters some problems with counterfactual sentences that contain no negation. Let us assume that same scenario—Clyde's being married at the age of thirty is the condition for him to be eligible for the inheritance—and consider (15a, b).

(15)   a.   If Clyde had MARRIED$_F$ Bertha, he would have been eligible for the inheritance.
       b.   If Clyde had married BERTHA$_F$, he would (still) have been eligible for the inheritance.

The generalization to be included in $f(w_c)$ is easily calculable in Rooth's account, except that his provision about negation must be dropped for positive examples like (15a, b). That is, in (15a), the proposition that is part of the common ground is "Clyde is related to Bertha via a relation that is salient in the context." Given this, each maximal set of propositions in A_{w_c}([[Clyde MARRIED$_F$ Bertha]]) should include the proposition "Clyde is related to Bertha via a relation that is salient in the context." But in this case, faithful application of Rooth's proposal does not explain the intuitive semantic effect of focusing. The entire conditional (15a) asserts that in all relevant worlds in which Clyde was related to Bertha through marriage (rather than through a different relation), he would have been eligible for the inheritance. This is correct. However, its implicit background assump-

tion, namely that since Clyde was actually not MARRIED (to Bertha), he was not eligible for the inheritance, is not explained.

The same issue arises with (15b). Here, the proposition to be included in $f(w_c)$ is "Clyde married one of the alternative individuals specified by the context" (along with the assumption that being married at the age of 30 is the condition for Clyde to be eligible for the inheritance). Each maximal set of propositions in $A_{w_c}(\llbracket$ Clyde married BERTHA$_F \rrbracket$) should include this proposition ("Clyde married one of the alternative individuals specified by the context"). Again, just as in (15a), adding this proposition does not seem to add any crucial information that affects the validity of the conclusion. Since the antecedent proposition (with no focus-based extra information) is already sufficient for us to conclude that Clyde is eligible for the inheritance in question, the intuitive effect of focusing is not represented. Actually, it is not clear whether (15b) is true without the adverb *still*. Without this adverb, it sounds like marrying BERTHA and not someone else matters for the purpose of getting the inheritance, which is clearly not the case. So there is some semantic or pragmatic effect of (15b) that is not explained by Rooth's original account.[8]

To account for the data we are concerned with, I contend that we need a stronger requirement for the partition function f, which is that it must include the proposition that is contrasted with the one asserted by the antecedent. In other words, I assume that at least in the examples being considered in this article, focused expressions are associated with an implicit adverb *instead*. If *instead* is used in a simple declarative sentence, its semantic effect is that there is something that is contrasted with the focused expression, and if the focused expression is replaced by this expression in the background, the sentence is **false**. For example, if one utters (16) it is interpreted to mean that Mary met Bill, and Mary did not meet X, where X is someone that is contrasted with Bill. It is safe to assume that this implicit information is presupposed by (16). For example, if what is contemplated as an alternative is the possibility that Mary met JOHN, then the presupposition is that Mary did not meet John.

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[8] An anonymous reviewer asks for clarification as to whether the issue at hand concerns Kratzer's theory of counterfactuals. This issue only concerns Rooth's account of how to deal with focused expressions in counterfactuals. It is largely independent of Kratzer's general account of counterfactuals. However, Kratzer's account leaves open how to determine the partition function f, and this is an open issue that awaits further study.

(16)   Mary met BILL_F, instead.

In counterfactual conditionals, we find a similar semantic effect except that what the conditional as a whole presupposes is not a negative sentence, but an affirmative one. This is explained through (17).

(17)   If Mary had met BILL_F (instead), she would have been pleased.

What happens here is that we have to assume that Mary actually met someone else, say John. This is just the opposite of what a simple declarative sentence with *instead* requires. I shall not pursue the question of presupposition projections that concern counterfactual conditionals. Let me just mention here that the same appears to be true of adverbs like *only*. Consider examples in (18). (18a) suggests that Mary did not meet anyone other than John (in the context in question). By contrast, (18b) takes for granted that it is NOT the case that Mary did NOT meet anyone other than John. That is, Mary met someone in addition to John. Thus, the presuppositions of these two sentences negate each other. The semantic effects of *instead* or *only* in the antecedent of a counterfactual are predictable from the fact that antecedents of counterfactuals are designed to posit a fictitious situations, whereas declarative sentences are used to indicate that they are true.

(18)   a.   Mary only met JOHN_F.
       b.   If Mary had only met JOHN_F, she would not have made friends with him.
            (Actually, Mary also met Bill, who introduced John to her. This way, they were able to become close friends.)

2.4.   A New Proposal

We are now in a position to investigate whether the Kratzer-Roth account can be extended to mismatched two-past counterfactual conditionals like (12a, b).[9] I believe that a solution to this problem can be found through the claim that the contribution of past tense (in normal declarative sentences) is presuppositional in that it indicates a contextually specified past time interval that has already been introduced by the time the sentence is uttered. In a simple declarative sentence in the past tense, the event or state it describes is asserted to obtain at or within this interval. The salient past time indicated by the past tense is not necessarily the location of the

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[9] Refer to Appendix for the notational conventions assumed for the purpose of this article.

event or state being depicted. For example, in a past perfect sentence, the salient past time has to be located **after** a relevant state or event that the sentence describes. In other words, the salient past time itself is not directly associated with the/a time of the event in question. In the underlined sentence in (19), the proposition ⟦Bill leave⟧ is not located at or within the salient past interval. Rather, it is located prior to that time. The basic idea is that the time indicated by the past tense is the time given by the previous discourse and is essentially presuppositional. We can extend this idea to the antecedent of a counterfactual conditional.

(19)　Mary arrived at the meeting place at 2 p.m. <u>Bill had already left, unfortunately.</u>

I claim that in two-past counterfactual conditionals, the perfect (which plays the role of the preterit in counterfactual conditionals) signals the location of the reference time (or topic time in the sense of Klein (1994)), which is the salient time given by the previous discourse. This time is not the time within which the antecedent eventuality is posited. Rather it is a time within which an eventuality that is contrasted with the antecedent eventuality is located in the actual world.

I follow Rooth in assuming that an existentially quantified proposition created via a focused expression is also in $f(w_c)$. For example, (17) is claimed to presuppose that there is some x (among the salient individuals) such that Mary met x. One subtle but important difference between Rooth's account and mine is that the latter is directed toward mismatched two-past counterfactuals, and their semantic properties are explained through covert adverbial *instead*. As long as a focused expression is associated with (covert) *instead*, its semantic properties are accounted for in the same way whether or not it is a temporal adverbial.

I contend that focus in the antecedent of a counterfactual conditional with covert *instead* is also responsible for yielding a proposition that is contrasted with the one that is actually given in the antecedent and that this proposition is **true** in the actual world. Within Kratzer's account, I assume that this proposition is included in the set of propositions specified by the partition function *f*. This proposition is necessarily excluded from each maximal set of propositions for the purpose of calculating the truth conditions of the counterfactual because this proposition and the proposition conveyed by the antecedent are mutually incompatible. Nevertheless, the contrasted proposition is presupposed by the conditional as a whole. The applicability of my proposal is limited in that not all focused phrases are associated with (covert) *instead*. I will turn to such complications in Section 2.5.

It is possible to use a phrase of the form *instead of DP* overtly to introduce the contrasted counterpart as in (20a, b), which are based upon (1a, b).

(20)   a.   If his son had been born TOMORROW$_F$ instead (of yesterday), John would have been ecstatic.

b.   If JOHN$_F$ had gone for a walk instead (of Bill), he would have had a good time.

I assume with Rooth (1996) that focusing causes a focus operator and a variable to be introduced as a sister node to an expression that contains a focused constituent in the syntactic representation. Then we can impose a constraint on the relation between the ordinary denotation of the focused phrase and its associated variable C. The point of using the operator ~ and a variable C is to encode the idea that the alternatives under discussion are contextually restricted.

(21)   Where ϕ is a syntactic phrase and C is a syntactically covert semantic variable, $\phi \sim C$ introduces the presupposition that C is a subset of $[\![\phi]\!]^f$ (the focus semantic value of ϕ) containing $[\![\phi]\!]^o$ (the ordinary semantic value of ϕ) and at least one other element.   (Rooth (1996: 279))

The assumption made by Rooth is that the focus semantic value of ϕ is the set of all possible semantic values of expressions of the same type as ϕ. For example, if *John* (a proper name) is focused, then set of all possible denotations of the same type, namely the set of individuals D is its focus semantic value. For a sentence containing a focused expression, its focus semantic value is the set of propositions obtained when the focused expression is understood to offer all alternative meanings of the same type. However, in a specific utterance context, we need to restrict its meaning to a subset of this set. (21) accomplishes just that.

In simple sentences, when *instead* is associated with focus, it is reasonable to propose (22). In words, when you say "instead of p," p is presupposed to be false.

(22) $[\![$instead$]\!] = \lambda f_{<<s,t>,t>} . \lambda p_{<s,t>} . \lambda w$ for all $q \in D_{<s,t>}$ such that $f(q) = 1$ and $p \neq q$, $q(w) = 0 . p(w) = 1$

For example, (23a) is understood to have the logical form in (23b), and is semantically analyzed as in (23c). C supplies the set of alternative propositions obtained through the focused expression. In this case, the two alternative propositions are "Mary met John" and "Mary met Bill." The adverbial *instead* signifies that at least two alternatives are considered: the one that is mentioned overtly, and the one that is in the background.

(23) a. Mary met BILL$_F$ instead.

      b. [$_S$ instead (C)] [$_S$ [$_S$ Mary met BILL$_F$] ∼ C]]

      c. Suppose that the denotation of C = λp . p = ⟦Mary met John⟧ or p = ⟦Mary met Bill⟧ Then ⟦[$_S$ instead (C)] [$_S$ [$_S$ Mary met BILL$_F$] ∼ C]]⟧(w) presupposes that ⟦Mary met John⟧(w) = 0. When this presupposition is met, the sentence is true iff ⟦Mary met Bill⟧(w) = 1

When association with *instead* occurs in the antecedent of a conditional sentence, the presupposition for the entire conditional is obtained by removing the negation from the presupposition appropriate for a declarative sentence. For the purpose of this article, I simply make the proposal descriptively adequate by positing a rule that states what proposition must be contained in the set of "facts" (or the common ground). I will not discuss presupposition projection as a general topic in this article. For some relevant issues, the reader is referred to Heim (1992) and Ippolito (2006).

In the case of (1a), repeated here as (24), we can assume that its antecedent is syntactically represented as in (25). Let us assume that the tense is ignored for the purpose of calculating the ordinary and focus semantic values of the antecedent of a conditional. The tense (i.e. the perfect) constrains the temporal location of a relevant proposition that is part of the common ground in the actual world at the utterance time, as we shall see below.

(24) If his son had been born TOMORROW$_F$, John would have been ecstatic.

(25)

(if) his son is born TOMORROW$_F$
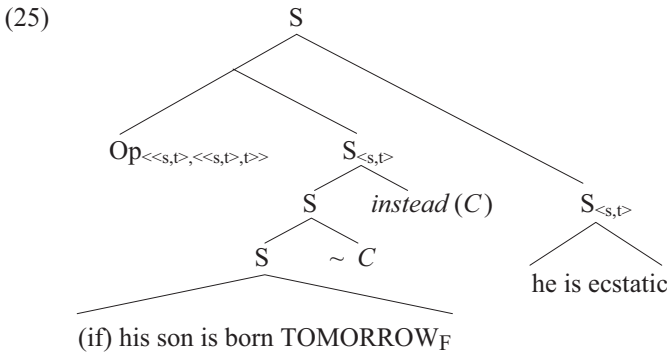
Let me go through (25) to show how its interpretation is obtained. I assume with Rooth that the sentence carries a presupposition (an element of $f(w_c)$ in Kratzer's proposal) that is obtained by introducing a variable in the position of the focused expression and an existential quantifier that binds

this variable. C is a covert variable that denotes a set of propositions, which is assumed to be a subset of the focus semantic value of the original sentence. For the purpose of this example, let us assume that the denotation of C is the set of propositions {⟦His son is born yesterday⟧, ⟦His son is born tomorrow⟧}, which is indeed a subset of the focus semantic value of **His son is born TOMORROW$_F$** because alternative values of the focused expression are various temporal intervals. Let me assume, for the purpose of semantic computation, that the set of propositions is encoded as a function of type $<<s,t>,t>$ namely **$\lambda p_{<s,t>}$. p = ⟦His son is born yesterday⟧ or p = ⟦His son is born tomorrow⟧**. At this point, we need the lexical semantic definition of *instead* given above in (22), which is repeated here as (26).

(26) ⟦instead⟧ = $\lambda f_{<<s,t>,t>}$. $\lambda p_{<s,t>}$. λw for all q ∈ $D_{<s,t>}$ such that f(q) = 1 and p ≠ q, q(w) = 0 . p(w) = 1

According to the above compositional structure, ⟦his son is born TOMOR-ROW ∼ C instead (C)⟧ = λw: his son is not born yesterday in w . his son is born tomorrow in w.

We now turn to the counterfactual operator designated by $Op_{<<s,t>,<<s,t>,t>>}$ in (25). This encodes Kratzer's proposal described in (10b) in a typed system. We say that it has the denotation given in (27). Its role is to make sure that the counterfactual supposition given in the antecedent leads to the truth of the consequent. First of all, we must make the system time sensitive because making reference to times is crucial here. $A_{w_c,t_c}(q)$ reads "set of all consistent subsets of $f(w_c)(t_c) \cup \{q\}$." Here, $f(w_c)(t_c)$ indicates the set of propositions that are "the case" in w_c at t_c. In (27), P indicates a maximal consistent subset of $A_{w_c,t_c}(q)$.

(27) $Op_{<<s,t>,<<s,t>,t>>}$ = $\lambda q_{<s,t>}$. $\lambda p_{<s,t>}$. for each P: P ⊆ $A_{w_c,t_c}(q)$ and there is no Q such that Q ⊆ $A_{w_c,t_c}(q)$ and P ⊂ Q, P ⊆ {w | q(w) = 1}

The truth conditions of the entire sentence are given this way: **for each maximal P ⊆ A_{w_c} (⟦John's son is born tomorrow (and not yesterday)⟧), P ⊆ ⟦John is ecstatic⟧**. This follows if we assume that sharing his birthday with his son makes John ecstatic.

I now turn to the implication that John's son was actually born some time before now. As suggested in an informal discussion above, this semantic effect is accomplished by assuming that an antecedent of a conditional that contains a focused phrase associated with *instead* has a presupposition that is obtained from the antecedent by replacing the focused phrase with a contrasted phrase of the same type and this phrase denotes one of the salient

entities denoted by this type of phrase.   For example, presuppositions posited for (1a, b) (repeated here as (28a, b)) are given in (29a, b), respectively.   Note here that the perfect used in antecedents of two-past counterfactuals contributes the temporal location of this presupposed proposition.   Each proposition is assumed to be an element of $f(w_c)(t_c)$.

(28)   a.   If his son had been born TOMORROW$_F$, John would have been ecstatic.

b.   If we had gone out for a walk TOMORROW$_F$, we would have had a good time.

(29)   a.   There is exactly one interval T such that John's son is born within T, where T is one of the contextually salient intervals, T is a past time, and $T \neq \llbracket$tomorrow$\rrbracket$

b.   There is exactly one interval T such that we go out for a walk within T, where T is one of the contextually salient intervals, T is a past time, and $T \neq \llbracket$tomorrow$\rrbracket$

Informally, a sentence in which the focused phrase is replaced by something else (that denotes a relevant entity) is true in the actual world, and this sentence contains a past temporal adverbial.   I believe that this is descriptively adequate.

We can see intuitively where this descriptive conclusion comes from.   As a counterfactual statement, one generally posits a situation that does not hold in the actual world.   The counterfactuality is almost forced upon us when a phrase within the antecedent is focused.   This strongly suggests that a sentence that is contrasted with the antecedent regarding the focused phrase is true (in the actual world), especially when an adverb like *instead* is used.   The perfect in the antecedent of a two-past counterfactual such as (28a, b) indicates the temporal location of the state or event that this contrasted and implicit statement describes.   This is a presupposition carried by conditionals like (24).   The generalization is given in (30) in a formally explicit manner.

(30)   **The Presupposition of (24)**

$\llbracket(24)\rrbracket^o$ is defined only if t_R (the "reference time" supplied by perfect) is a past time interval and there is an interval $t \in t_R$ and there is a temporally indeterminate proposition r $\in D_{\langle i, \langle s,t \rangle\rangle}$ such that r(t) $\in \llbracket$John's son is born **TOMORROW$_F$**$\rrbracket^f$, r(t) $\neq \llbracket$John's son is born **TOMORROW$_F$**$\rrbracket^o$ and r(t) $\in$ f(w$_c$)(t$_c$).

In words, (30) says that the denotation of the counterfactual conditional given in (28a) is defined only if there is a "temporally indeterminate proposition" (type $\langle i, \langle s,t \rangle\rangle$) r such that r applies to a time within the contextu-

ally salient past time to yield a proposition (of type $\langle s,t \rangle$) that is one of the alternatives given by the focused value of the antecedent of the counterfactual and is distinct from the proposition conveyed by the antecedent. Moreover, this proposition is one of the "facts" in w_c at t_c (indicated by $f(w_c)(t_c)$). This is merely descriptively adequate. However, the underlying idea is clear from the fact that when a constituent within the antecedent of a counterfactual conditional is focused, this is usually understood as truly counterfactual, and it is contrasted with a situation that actually occurred. As mentioned before, this is reversed from the situation associated with a simple declarative sentence with a focused phrase associated with adverb *instead*.

2.5. Additional Issues

The presupposition projection facts that concern counterfactual conditionals are rather complex, and this topic cannot be dealt with systematically in this article. Heim (1992) discusses the presupposition projection facts about counterfactual conditionals briefly and points out that an antecedent clause that contains *too* such as (31a) presupposes that there is someone who attended.[10] Moreover, this is part of the input context to which the antecedent adds its semantic contribution. In other words, our judgment of whether or not the consequent follows from the antecedent must be based on the assumption that John and someone else (that is contextually salient) attended the meeting. It is natural to complete (31b) with a consequent like "Mary would be outside (because the phone booth is not big enough for two people)." This means that "Mary is in the phone booth" is not a proposition that is assumed to be true when the counterfactual conditional is processed. That is, the antecedent clause in (31a) is said to keep the relevant presupposition as part of the input context set, whereas (31b) suspends the relevant presupposition from the input context set in order to process the counterfactual conditional. We can assume that in (31b), the focused phrase (i.e. *John*) is associated with the implicit adverb *instead*, which is essentially what I am pursuing in this article. Thus, focus has different effects depending on what expression it is associated with. A focused phrase

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[10] An anonymous reviewer observes that mismatched two-past counterfactuals never allow a focused temporal adverbial (such as *tomorrow*) to be associated with covert (or overt) *too*, whereas non-mismatched ones do. Although this is an interesting difference between them, this article cannot offer an account of why this is the case, and the issue will be left for future research.

in the antecedent of a counterfactual conditional with no qualifier analogous to that of (31b), which is an interpretation according to which there is an implicit adverb *instead*.

(31) a. If JOHN$_F$ had attended the meeting too, …
     b. (Mary is in the phone booth.) If JOHN$_F$ were in the phone booth, …

For the purpose of this paper, what is important is that even when the relevant presupposition is suspended for the purpose of processing the conditional, we must assume that the proposition in question (Someone other than John—specifically, Mary—is in the phone booth) is part of the common ground before the conditional is processed. This is important for the proposal being defended.

Let us now turn to another important implication that my counterfactual examples have. For example (24) suggests not only that his son was born on a day that is not tomorrow (yesterday, according to our scenario), but also that John was not ecstatic (though very happy). How do we get this result? As mentioned above, we must assume that sharing the same birthday with his son makes John ecstatic. Grice's Maxim of Quantity allows us to conclude that not sharing the same birthday with his son does not make him ecstatic, though this proposition does not follow logically from the first. Assuming (30), we can obtain the proposition "John's son was born on a day that is different from tomorrow" that is part of the common ground. We can then conclude that John was not ecstatic. I believe that this line of reasoning is correct because this reasoning can be overridden by expressions like *still*, as shown in (15b).

Another argument for the proposal being defended is that the semantic mechanism to be employed is exactly the same regardless of whether the counterfactual is a mismatched one or not. That is, even when the focused constituent is not a temporal adverbial (names, manner adverbs, locatives, etc.), we can employ the same semantic rule. This is shown by examples like (32a, b). (32a) is understood to mean that if John had met Mary instead of someone else who is salient in the context, he would have talked to her. We also need to assume that the sentence in which Mary is replaced by a different name is true in the actual world. Although I will not elaborate the details, the semantic rules apply in an analogous manner. (32b) presupposes that John loved Mary in a manner that is not passionate. When this presupposition is satisfied, it is true iff in every maximal consistent subset of A_{w_c,t_c}(⟦John loved Mary passionately (rather than in a different manner)⟧) includes the proposition ⟦he proposed to her⟧.

(32) a. If John had met MARY$_F$, he would have talked to her.

b. If John had loved Mary PASSIONATELY$_F$, he would have proposed to her.

The fact that we can deal with all "two-past counterfactuals" in a uniform fashion is an important advantage of our account, especially because Ippolito's (2006) account appears to have problems with some non-mismatched two-past counterfactuals, as I shall explain in the next section.

It is often pointed out that so-called counterfactual conditionals in English are not necessarily about positing hypothetical situations that do not occur in the actual world. (33) is an example cited by Anderson (1951: 37). In this example, the antecedent must be true in the actual world if the entire sentence were to be true.

(33) If Jones had taken arsenic, he would have shown just exactly those symptoms which he does in fact show.

Although the word *arsenic* receives a focal stress, it does not seem to produce a clear semantic effect normally associated with focus. In other words, it does not seem to say that Jones took arsenic *instead* of something else. However, I do not think that this is problematic for the claim being made in this article. The focal stress on *arsenic* is based on the default intonational pattern, and there is no association-with-focus effect here. In other words, my claim is simply that at least in some cases, a focal stress on an expression in the antecedent of a conditional produces an association-with-focus effect.

3. Ippolito's (2006) Proposal Examined

Ippolito (2002, 2003, 2006) criticizes Ogihara's (2000) proposal and presents her own account of mismatched two-past counterfactuals (as well as one-past counterfactuals that refer to the current time or a future time). Let me discuss some of her counterarguments. First, Ippolito claims that (34a) is acceptable even if we assume that Charlie is already dead and never visited Boston in his life. This is unexpected under my proposal, since there is no true proposition contrasted with the antecedent proposition. Second, (34b) could be used to talk about a fictitious situation in the future despite the fact that it has a focused expression in the antecedent that is not a temporal adverbial. This is also unexpected under my proposal, according to Ippolito.

(34) a. If Charlie had gone to Boston THE DAY AFTER TOMOR-
          ROW, he would have seen the Red Sox play.[11]
      b. If he had gone to MILAN tomorrow, he would have met my
          sister.

I argue that in general, two-past counterfactuals which talk about fictitious
future situations that do not invoke contrasted past situations are usually not
fully acceptable. The native informants I consulted agree that (34a) and
(34b) are not as natural as typical mismatched two-past counterfactuals.

   However, I shall argue for the purpose of this article that a focused con-
stituent associated with overt or covert *instead* is a **sufficient condition** for
a felicitous use of mismatched two-past counterfactuals, rather than a neces-
sary (and sufficient) condition.[12]   Thus, I allow for the possibility that some
mismatched two-past counterfactuals are licensed in a different way, and
that Ippolito's examples of non-mismatched counterfactuals are accounted
for through a very different mechanism.   What I suspect is that in English
using the past perfect is the only available morphological form for express-
ing a true counterfactual supposition in the future because using the present
or the simple past would only produce future-less-vivid interpretations in the
sense of Iatridou (2000).   Thus, native speakers may use mismatched two-
past counterfactuals to refer to future situations "as the last resort," and they
may receive an account analogous to Ippolito's.   Nevertheless, I still would
like to discuss Ippolito's proposal here because it seems to suffer from some
internal problems.

   I think there is a legitimate reason to suspect that the type of mismatched
two-past counterfactuals that I deal with is distinct from that discussed by
Ippolito.   For example (35a), which does not involve the adverbial *instead*
implicitly or explicitly, can be paraphrased as in (35b).[13]   On the other

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[11] A referee points out that (34a) may involve focusing of the entire VP *going to Bos-
ton the day after tomorrow*, which is contrasted with dying (and not being able to do
so).   If so, this example is not a problem for my proposal.   The idea may be strength-
ened by slightly paraphrasing the original in the following manner.   This paraphrase is
also sounds more natural than the original but conveys the same idea.
      (i) If Charlie had been alive and gone to Boston THE DAY AFTER TOMOR-
          ROW, he would have seen the Red Sox play.
[12] I owe Christopher Tancredi (personal communication) for reminding me that this
conservative position is defensible.
[13] An anonymous reviewer says that (35a) has a also/too reading ('If the Mariners had
played the Yankees TOMORROW TOO, I would have gone to the game.'), which mis-
matched counterfactuals like (35c) do not.   The reviewer suspects that it is because base-
ball games are scheduled events.   This also supports the view that the counterexamples

hand, the type of mismatched two-past counterfactuals that involves *instead* such as (35c) cannot be paraphrased in terms the simple past or the past progressive in (35d).

(35) a. If the Mariners had played the Yankees TOMORROW, I would have gone to the game.

  b. If the Mariners were playing the Yankees TOMORROW, I would be going to the game.

  c. If his son had been born TOMORROW (instead of yesterday), John would have been ecstatic.

  d. If his son were (being) born TOMORROW (instead of yesterday), John would have been (or would be) (even) more pleased.

Ippolito (2002, 2003, 2006) discusses mismatched two-past counterfactual conditionals and presents her own analysis of the construction. In this article, we will discuss her most recent proposal (Ippolito (2006)). Her proposal has two ingredients which are summarized in (36).

(36) Ippolito's (2006) proposal (summarized by Ogihara)

  a. **Truth Conditions**

    (i) A two-past counterfactual conditional (with a past perfect in the antecedent) is true iff there is an extended interval T that ends with a past salient time such that for every subinterval t of T and every world w "accessible" from w_c at t such that the antecedent is true in w at some $t_1 > t$, the consequent is true in w at t_1. (ii) A one-past counterfactual conditional (with a simple past in the antecedent) is true iff there is an extended interval T that ends with t_c such that for every subinterval t of T and every "accessible world" w from w_c at t and the antecedent is true in w at $t_1 \geq t$, the consequent is true in w at t_1.[14]

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that Ippolito presents are qualitatively different from mismatched counterfactual conditionals.

[14] Ippolito's original proposal about one-past counterfactual conditional (Ippolito (2006: 648)) is slightly more complicated in that the tense denotes a time that overlaps the utterance time, and an extended now interval is defined in relation to the time the tense denotes. However, as far as I can see, this complication brings about no semantic difference. Thus, I present a simpler version that predicts the same semantic consequences here: an extended now interval makes direct reference to the utterance time.

b. **Felicity Conditions**

The speaker's presupposition in the actual world at a relevant salient time must be consistent with the presuppositions of the antecedent of the conditional. The "relevant salient time" is determined by the tense form of the conditional. A two-past counterfactual requires that this time be a past time; a one-past counterfactual requires that it be a non-past time.

Regarding (36a) Ippolito's idea of accessibility is based on what she calls metaphysical or historical modality. Accessible worlds are determined in relation to the actual world and an extended interval ending with a past time (two-past) or the utterance time (one-past). The intuition is that there is an interval such that accessible worlds are determined by the actual world and all subintervals of this extended interval. (36b) provides felicity conditions for the two types of counterfactuals.

   It turns out, however, that this revision has undesirable repercussions for Ippolito. Consider the examples (37a) and (37c). Ippolito's own judgments are that (37a) is fully acceptable, but (37c) is not. (37b) correctly shows that (37a) can be true. However, (37d) incorrectly predicts that the truth conditions of (37c) can be satisfied. Since the truth conditions are defined in terms of all subintervals of an extended now such that John's running the Boston Marathon was still possible, we could select subintervals when John was still alive, and then define accessible worlds from there. Perhaps Ippolito wishes to rule out (37c) by appealing to its felicity conditions. That is, since John is dead now, the presupposition of the antecedent (John's being alive now) is not satisfied. However, this approach has an independent problem I shall describe below.

(37) a. John is dead. If John had run the Boston Marathon next spring, he would have won.

   b. $[\![S]\!]^{g,c} = 1$ iff $\exists T[$the contextually salient past time is a final subinterval of T such that $\forall t \subseteq T[\forall w \in W[w$ is accessible from w_c at t and John runs the Boston marathon next spring in w $\rightarrow$ Charlie wins in w$]]]$

   c. #John is dead. If John ran the Boston Marathon next spring, he would win.

   d. $[\![S]\!]^{g,c} = 1$ iff $\exists T[$the utterance time is a final subinterval of T such that $\forall t \subseteq T[\forall w \in W[w$ is accessible from w_c at t and John runs the Boston marathon next spring $\rightarrow$ Charlie wins in w$]]]$

Consider now (38a, b) from the viewpoint of their felicity conditions. According to (36b), when a one-past counterfactual (= a future less vivid) is

used as in (38a), the presuppositions of the antecedent must be compatible with the presuppositions of the actual world at the utterance time. On the other hand, two-past counterfactuals only require that the presuppositions of the antecedent be compatible with the presuppositions of the actual world at a salient past time. Ippolito claims that this is why (38a) is anomalous, whereas (38b) is acceptable.

(38) a. #Charlie is dead. If he came to the party tomorrow, he would meet Sally.

     b. Charlie is dead. If he had come to the party tomorrow, he would have met Sally.

Her explanation is that since Charlie is dead now, a presupposition of "he comes to party tomorrow," which is that "Charlie is alive," is not satisfied tomorrow. On the other hand, (38b) allows us to go back to some past time at which the presupposition of the antecedent was still satisfied. That is, we can find a time when Charlie was still alive. Ippolito's proposal about felicity conditions given above in (36b) are restated formally in (39a, b).

(39) **Felicity Conditions of Counterfactual Conditionals** Ippolito (2003, 2006)

    P = the set of all worlds in which the conjunction of all presuppositions associated with the antecedent is true

    c_t = the context set of any time t

    a. Felicity condition for one-past conditionals:

      $P \cap c_{t_c} \neq \{\}$, where t_c is the utterance time

    b. Felicity condition for mismatched two-past counterfactuals:

      $P \cap c_t \neq \{\}$, where $t < t_c$

Ippolito's proposal about felicity conditions requires that we distinguish between (40a) and (40b). (40a) is an example in which a presupposition of the antecedent (i.e. Charlie is alive) is inconsistent with what is presupposed in the context (i.e. Charlie is dead). As (39a) does not permit this possibility, (40a) is anomalous. On the other hand, (40b) is an example in which the antecedent itself contradicts what is presupposed in the context. (39b) does not preclude this possibility, and (40b) is ruled in. So far, so good. However, we still need to make sure that (40b) has the desired truth conditions according to Ippolito's proposal summarized in (36a).

(40) a. #Charlie is dead. If he went to the party tomorrow, he would meet Sally.

     b. Charlie is dead. If *he were alive* and went to the party tomorrow, he would meet Sally.

Note that the truth conditions of (40b) are described as in (41), according to Ippolito.

(41) $[\![S]\!]^{g,c} = 1$ iff $\exists T$[the utterance time is a final subinterval of T & $\forall t \subseteq T[\forall w \in W[w$ is accessible from w_c at t and Charlie is alive and goes to the party tomorrow in w at some time $t_1 \geq t \rightarrow$ Charlie meets Sally in w at $t_1 \geq t]]]$

The truth conditions in Ippolito (2006) allow (40b) to be true even when Charlie is dead now thanks to her idea of using an extended now interval because we can find a very long extended now interval such that he was still alive during some of its subintervals. This allows us to find some relevant accessible worlds in which Charlie goes to the party tomorrow. If Charles meets Sally in those worlds, the sentence is predicted to be true. This prediction is correct.

  Ippolito's proposal encounters a problem, however. Consider examples in (42).

(42)   a.   If Babe Ruth and Lou Gehrig were on our roster today, we would be ahead now.
       b.   If Kazuo Miyamoto had been a Caucasian, he would not have been prosecuted.

(42a) is uttered by the manager of a baseball team when today's game is already underway and his team is losing. Thus, the situation depicted in the antecedent is about (an interval overlapping) the utterance time. Since it is a one-past counterfactual, Ippolito claims that the presuppositions of the antecedent must be satisfied for (42a) to be used felicitously. Players can be on the roster only if they are alive. Thus, (42a) would require the named individuals to be alive at the utterance time. However, this prediction is not borne out. Even though Ruth and Gehrig are dead, one could use (42a) to describe the hypothetical scenario. This means that Ippolito's proposal about felicity conditions given in (39) are inadequate. The truth conditions of (42a) may be satisfied. However, if Ippolito were to revise her felicity conditions to make (42a) acceptable, then I am not sure how (37c) could be ruled out because if (37c) is anomalous, it can only be explained in Ippolito's account in terms of her current felicity conditions.

  (42b) points to a conceptual as well as an empirical problem of Ippolito's truth conditions for two-past counterfactuals. (One can create one-past counterfactuals that make the same point.) This example sentence is not a mismatched counterfactual conditional. However, Ippolito's proposal is supposed to apply to it as well as to mismatched ones. Therefore, it should be able to account for the semantics of examples likes (42b). (42b)

is inspired by the story depicted in the movie *Snow Falling on Cedars* set in the Pacific Northwestern United States in 1954. A Japanese American named Kazuo Miyamoto was prosecuted for an alleged murder of a Caucasian fisherman. Kazuo was prosecuted partly because of the anti-Japanese sentiments still rampant at that time. He was proven innocent because it was discovered that an accident caused the fisherman to die; hence, there was no murder. The counterfactual conditional says that if we assume counterfactually that Kazuo had been a Caucasian (given the same questionable circumstances), his prosecution would not have occurred. Whether or not this counterfactual conditional is true, the claim is presentable and arguable. (42b) casts doubt on Ippolito's proposal because there does not seem to be a past time when it was "still possible" for Kazuo to become a Caucasian (or for his parents/ancestors to make Kazuo a Caucasian). The reasoning that we need to go through when we evaluate a sentence like (42b) is that we magically change Kazuo's genetic makeup without changing his personality or life history and see whether this leads to what the consequent asserts, even if this makes no sense biologically. It is not that his parents or ancestors could have done things differently to make Kazuo a Caucasian. This points to the possibility that the truth conditions of two-past counterfactuals proposed by Ippolito (2003, 2006) are inadequate.

Note that the issue having to do with Ippolito's felicity conditions manifests itself in two-past counterfactuals, too. Suppose that Mary is alive and well right now. Given the normal assumption that people cannot be resurrected (which Ippolito assumes as well), we can assume that there is no past time when she was dead. Suppose that Mary was almost killed by a big storm and was reported as missing for several days, and John, Mary's close friend, tried to locate her and visited a temporary mortuary where the victims were placed. Fortunately, Mary survived that storm, but John learned that later. Assume that (43) refers to that situation, and it is felicitous (and is probably true).

> (43) If John had found Mary's body in the mortuary, he would have been devastated.

According to Ippolito's analysis, (43) is felicitous when the salient time is a past time and the set of presuppositions at that time are compatible with the presuppositions of the antecedent proposition ("John finds Mary's body in the mortuary"). It is reasonable to assume that one of its presuppositions is that Mary was dead. However, since Mary has been alive all her life up to now, it is natural to conclude that there was no such time. Nevertheless, (43) is perfectly acceptable and interpretable. This suggests that Ippolito's

account may have empirical problems. This is another example that shows that the counterfactual situation described by the antecedent of a counterfactual conditional does not become "possible" by going back into the past.

Perhaps an example involving people's lives seems clearest, but we can also find examples like (44), which involves someone's being retired. I assume that one can truly retire at most once in his/her life: between the continuous active working life and one's (face it) death. If this is the case, for someone who is still in the midst of his/her active adult working life, there is no past time when retirement was compatible with the assumptions about his/her life's "facts." Suppose that Bill is in his 60s and is employed. (Thus, he is not retired.) In 2003, his company offered chances for early retirement (with some incentives). But he did not "bite." In 2008, he met some of his former colleagues who had retired early, and they were miserable. So he was pleased that he had not retired in 2003. (44) describes this situation.

    (44)   If Bill had been retired in 2008, he would have been miserable, too.

Ippolito's proposal requires that there be a past time (presumably before 2008, when Bill was not retired) at which the set of presuppositions is compatible with Bill's being retired then. However, given that Bill has not been retired, there was no such time. Thus, the required felicity conditions do not seem to be satisfied.

Lastly, I would like to stress once again that what Ippolito calls one-past counterfactuals (those conditionals in which the antecedent is in the simple past tense but refers to non-past situations) should be classified into two types: (i) genuine counterfactuals about the present, and (ii) so-called future less vivids (Iatridou (2000)) that do not describe what is "truly counterfactual" or "completely impossible." Most English native speakers I consulted distinguished between (45a) and (45b) in terms of their truth conditions. (45a) is almost the same as (42a) in that it refers to the current situation, whereas (45b) refers to a future situation (i.e. tomorrow). According to Ippolito's felicity conditions, they should be equally anomalous because Ruth and Gehrig are both dead now. As for their truth conditions, with the revised truth conditions in Ippolito (2006), they are still treated the same. In other words, they both could be true. According to the native speaker's intuitions, however, (45a) is acceptable and meaningful, whereas (45b) is not. Although Ruth and Gehrig's being dead may not be an absolute criterion for the antecedent's being counterfactual, it should impact (45a) and (45b) in the same way. Nevertheless, they receive different judg-

ments from native speakers. This clearly means that their felicity conditions are different, and their truth conditions may also be different.

(45) a. (Uttered when today's game is already underway.) If Babe Ruth and Lou Gehrig were on our roster today, they would be hitting in clean-up spots.

b. #If Babe Ruth and Lou Gehrig were on our roster tomorrow, they would be hitting in clean-up spots.

According to Ippolito's (2006) truth conditions, both (45a) and (45b) can be true. According to her felicity conditions, both should fail because they are known to be dead now. Unless the two types of one-past (counterfactual) conditionals are distinguished from each other, Ippolito's proposal would not be able to cover both types.

From a very informal and "functionalist" point of view, we can understand why there is a difference between one-past conditionals used for a truly counterfactual situation about the utterance time and one-past conditionals used for "unlikely but possible future situations." If we accept future less vivids as a special construction indicated by the simple past tense form and future orientation, then one needs a different morphological form to indicate "true counterfactuality" for future situations. It is imaginable that since the future tense form, the present tense form, and the simple past tense form "have already been used" for talking about the future, English speakers resort to the past perfect even when a focus effect of the type discussed in my proposal is not there. Although this is not a satisfactory account from the theoretical point of view, it might partially explain the awkwardness of examples used by Ippolito.

4. Conclusion

In this article, I presented an analysis of two-past counterfactuals in which future counterfactual situations are referred to by the past perfect form in the antecedent. The proposal I defended is based on Kratzer's (1981) analysis of counterfactuals. Rooth (1985) combines his analysis of association with focus and Kratzer's proposal about counterfactuals and analyzes some examples discussed by Dretske (1972). I slightly modify Rooth's proposal to adapt it to time-sensitive cases, especially mismatched two-past counterfactuals. Ippolito's (2003, 2006) proposal about the same construction may not have the same empirical coverage, and I merely argue for the validity of my proposal only as one way of justifying and analyzing two-past counterfactuals (including mismatched ones). Put another way,

my proposal can be understood as a general proposal about counterfactuals with a focused constituent in the antecedent, where this focused constituent is associated with (overt or covert) *instead*. I pointed out that Ippolito's analysis has some internal problems that need to be resolved in order to become a viable proposal for counterfactuals. Due to the complexity of the data and the existing theories, this paper was not able to discuss the details of the issues having to do with presupposition projection. I hope to tackle this topic in detail in the not so distant future.

APPENDIX

Ontology

D_e = the set of entities/individuals (= D)

D_t = the set of truth values (= $\{0, 1\}$)

D_i = the set of intervals

D_s = the set of worlds (= W)

Types

e: entities/individuals

t: truth values

i: times (= intervals of time)

s: worlds

For any types a and b, $D_{<a,b>}$ = $\{f \mid f$ is a (partial) function from D_a into $D_b\}$

Notational conventions

t_c = the utterance time = the time of the context

w_c = the real world = the world of the context

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